

October 20, 2015

MARK PEACOCK
DUKE ENERGY EDWARDSPOINT IGCC
15424 E. STATE ROAD 358
Edwardsport, IN 47528

RE: Project: Grey Water Treatment Profile
Pace Project No.: 50130218

Dear MARK PEACOCK:

Enclosed are the analytical results for sample(s) received by the laboratory on October 16, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Kenneth Hunt
kenneth.hunt@pacelabs.com
Project Manager

Enclosures

cc: Mr. Rhett Moody, Duke Energy (Edwardsport Generating Station)



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Grey Water Treatment Profile

Pace Project No.: 50130218

Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268

Illinois Certification #: 200074

Indiana Certification #: C-49-06

Kansas Certification #: E-10177

Kentucky UST Certification #: 0042

Kentucky WW Certification #: 98019

Louisiana Certification #: 04076

Ohio VAP Certification #: CL-0065

Oklahoma Certification #: 2014-148

Texas Certification #: T104704355-15-9

West Virginia Certification #: 330

Wisconsin Certification #: 999788130

USDA Soil Permit #: P330-10-00128

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SAMPLE SUMMARY

Project: Grey Water Treatment Profile

Pace Project No.: 50130218

Lab ID	Sample ID	Matrix	Date Collected	Date Received
50130218001	16:Filtered Water 20151013-031	Water	10/13/15 09:45	10/16/15 11:30
50130218002	55:GW Influent 20151013-032	Water	10/13/15 08:20	10/16/15 11:30
50130218003	55:GW In Process 20151013-033	Water	10/13/15 08:25	10/16/15 11:30
50130218004	16:Filtered Water 20151015-015	Water	10/15/15 09:10	10/16/15 11:30
50130218005	55:GW Influent 20151015-016	Water	10/15/15 08:40	10/16/15 11:30
50130218006	55:GW In Process 20151015-017	Water	10/15/15 08:45	10/16/15 11:30

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SAMPLE ANALYTE COUNT

Project: Grey Water Treatment Profile

Pace Project No.: 50130218

Lab ID	Sample ID	Method	Analysts	Analytes Reported
50130218001	16:Filtered Water 20151013-031	EPA 200.8	CAW	2
50130218002	55:GW Influent 20151013-032	EPA 200.8	CAW	2
50130218003	55:GW In Process 20151013-033	EPA 200.8	CAW	2
50130218004	16:Filtered Water 20151015-015	EPA 200.8	CAW	2
50130218005	55:GW Influent 20151015-016	EPA 200.8	CAW	2
50130218006	55:GW In Process 20151015-017	EPA 200.8	CAW	2

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ANALYTICAL RESULTS

Project: Grey Water Treatment Profile

Pace Project No.: 50130218

Sample: 16:Filtered Water 20151013-031		Lab ID: 50130218001		Collected: 10/13/15 09:45	Received: 10/16/15 11:30	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Arsenic	ND	mg/L	0.0010	1	10/19/15 09:00	10/19/15 18:54	7440-38-2	
Selenium	ND	mg/L	0.0010	1	10/19/15 09:00	10/19/15 18:54	7782-49-2	

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ANALYTICAL RESULTS

Project: Grey Water Treatment Profile

Pace Project No.: 50130218

Sample: 55:GW Influent 20151013-032 **Lab ID:** 50130218002 Collected: 10/13/15 08:20 Received: 10/16/15 11:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS								
Analytical Method: EPA 200.8 Preparation Method: EPA 200.8								
Arsenic	0.21	mg/L	0.0050	5	10/19/15 09:00	10/19/15 18:19	7440-38-2	
Selenium	0.14	mg/L	0.0010	1	10/19/15 09:00	10/19/15 18:23	7782-49-2	

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ANALYTICAL RESULTS

Project: Grey Water Treatment Profile

Pace Project No.: 50130218

Sample: 55:GW In Process 20151013-033		Lab ID: 50130218003		Collected: 10/13/15 08:25	Received: 10/16/15 11:30	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Arsenic	ND	mg/L	0.0010	1	10/19/15 09:00	10/19/15 18:58	7440-38-2	
Selenium	ND	mg/L	0.0010	1	10/19/15 09:00	10/19/15 18:58	7782-49-2	

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ANALYTICAL RESULTS

Project: Grey Water Treatment Profile

Pace Project No.: 50130218

Sample: 16:Filtered Water 20151015-015		Lab ID: 50130218004		Collected: 10/15/15 09:10	Received: 10/16/15 11:30	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Arsenic	ND	mg/L	0.0010	1	10/19/15 09:00	10/19/15 19:03	7440-38-2	
Selenium	ND	mg/L	0.0010	1	10/19/15 09:00	10/19/15 19:03	7782-49-2	

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ANALYTICAL RESULTS

Project: Grey Water Treatment Profile

Pace Project No.: 50130218

Sample: 55:GW Influent 20151015-016 **Lab ID:** 50130218005 Collected: 10/15/15 08:40 Received: 10/16/15 11:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Arsenic	0.23	mg/L	0.0050	5	10/19/15 09:00	10/20/15 11:27	7440-38-2	
Selenium	0.11	mg/L	0.0010	1	10/19/15 09:00	10/19/15 19:07	7782-49-2	

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ANALYTICAL RESULTS

Project: Grey Water Treatment Profile

Pace Project No.: 50130218

Sample: 55:GW In Process		Lab ID: 50130218006		Collected: 10/15/15 08:45	Received: 10/16/15 11:30	Matrix: Water		
20151015-017								
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS		Analytical Method: EPA 200.8 Preparation Method: EPA 200.8						
Arsenic	ND	mg/L	0.0010	1	10/19/15 09:00	10/19/15 19:12	7440-38-2	
Selenium	ND	mg/L	0.0010	1	10/19/15 09:00	10/19/15 19:12	7782-49-2	

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QUALITY CONTROL DATA

Project: Grey Water Treatment Profile

Pace Project No.: 50130218

QC Batch: MPRP/18268

Analysis Method: EPA 200.8

QC Batch Method: EPA 200.8

Analysis Description: 200.8 MET

Associated Lab Samples: 50130218001, 50130218002, 50130218003, 50130218004, 50130218005, 50130218006

METHOD BLANK: 1404335

Matrix: Water

Associated Lab Samples: 50130218001, 50130218002, 50130218003, 50130218004, 50130218005, 50130218006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0010	10/19/15 18:10	
Selenium	mg/L	ND	0.0010	10/19/15 18:10	

LABORATORY CONTROL SAMPLE: 1404336

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	.04	0.039	97	85-115	
Selenium	mg/L	.04	0.039	97	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1404337 1404338

Parameter	Units	50130218002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	0.21	.04	.04	0.24	0.33	68	284	70-130	30	20	M0
Selenium	mg/L	0.14	.04	.04	0.16	0.17	55	67	70-130	3	20	M3

MATRIX SPIKE SAMPLE: 1404339

Parameter	Units	50130029001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	ND	.04	0.037	93	70-130	
Selenium	mg/L	ND	.04	0.038	94	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Grey Water Treatment Profile

Pace Project No.: 50130218

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

M3 Matrix spike recovery was outside laboratory control limits due to matrix interferences.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Grey Water Treatment Profile

Pace Project No.: 50130218

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50130218001	16:Filtered Water 20151013-031	EPA 200.8	MPRP/18268	EPA 200.8	ICPM/2180
50130218002	55:GW Influent 20151013-032	EPA 200.8	MPRP/18268	EPA 200.8	ICPM/2180
50130218003	55:GW In Process 20151013-033	EPA 200.8	MPRP/18268	EPA 200.8	ICPM/2180
50130218004	16:Filtered Water 20151015-015	EPA 200.8	MPRP/18268	EPA 200.8	ICPM/2180
50130218005	55:GW Influent 20151015-016	EPA 200.8	MPRP/18268	EPA 200.8	ICPM/2180
50130218006	55:GW In Process 20151015-017	EPA 200.8	MPRP/18268	EPA 200.8	ICPM/2180

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A		Section B		Section C	
Required Client Information:		Required Project Information:		Invoice Information:	
Company:	DUKE ENERGY - EDWARDSPORT ZACC	Report To:	MARK D. PERCACK - DUKE ENERGY		Attention:
Address:	15404 E. SR 358	Copy To:	RHETT MADDY - DUKE ENERGY		Company Name:
Email To:	EDWARDSPORT IN 47528	Purchase Order No.:	RHETT.MADDY@DUKE-ENERGY.COM		Address:
Phone:	812-735-8583	Project Name:	EDWARDSPORT GREY WATER TREATMENT PROFILE		Pace Quote Reference:
Requested Due Date/TAT:		Project Number:			Pace Project Manager:
				Pace Profile #:	
				REGULATORY AGENCY	
				<input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER	
				Site Location	
				STATE: INDIANA	

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test ↑ Y/N ↓	Requested Analysis Filtered (Y/N)												Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
				COMPOSITE START	COMPOSITE END/GRAB			DATE	TIME	DATE	TIME	Unpreserved	H ₂ SO ₄	HNO ₃		HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION		DATE		ACCEPTED BY / AFFILIATION		DATE		SAMPLE CONDITIONS	
	PRINT Name of SAMPLER:	SIGNATURE of SAMPLER:	TIME	DATE	TIME	DATE	TIME	DATE	Temp In °C	Received on
10/15/15 Diana Reedy Feltex	10/15/15	10/15/15	1005	10/15	1130	10/15	1130	2008	N	Y
SAMPLER NAME AND SIGNATURE PRINT Name of SAMPLER: DIANA REEDY SIGNATURE of SAMPLER: Diana Reedy										
DATE Signed (MM/DD/YY): 10-15-15										

ORIGINAL

Sample Condition Upon Receipt

Pace Analytical

Client Name: Duke Energy

Project # 5013218

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other

Tracking #: 646745417715

Custody Seal on Cooler/Box Present: ☒ yes ☐ no Seals intact: ☒ yes ☐ no

Date/Time 5035A kits placed in freezer

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☒ Other Box/2PLC

Thermometer 1 2 3 4 5 6 A B C D E F Type of Ice: Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature (Initial/Corrected) 20.2/20.2 °C Ice Visible in Sample Containers: ☐ yes ☒ no

Temp should be above freezing to 6°C Comments: Date and initials of person examining contents: 10/16/15 KHL

Are samples from West Virginia?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	1.
Document any containers out of temp.		
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Filled Out:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	3. <u>No date or time/see comments</u>
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Sample Labels match COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	9. <u>See comments below</u>
-Includes date/time/ID/Analysis		
All containers needing acid/base pres. have been checked?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10. (Circle) <u>HNO3</u> H2SO4 NaOH NaOH/ZnAc
exceptions: VOA, coliform, TOC, O&G		
All containers needing preservation are found to be in compliance with EPA recommendation (<2, >9, >12) unless otherwise noted.		
Residual Chlorine Check (SVOC 625 Pest/PCB 608)		11. Present Absent
Residual Chlorine Check (Total/Amenable/Free Cyanide)		12. Present Absent
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
Headspace Wisconsin Sulfide	<input type="checkbox"/> Yes <input type="checkbox"/> No	14.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Project Manager Review		
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	17.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	

Client Notification/ Resolution: _____ Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: Sample ID on containers is just the numbers after description. Times on containers are as follows:
Item 1 - 0945, Item 2 - 0820, Item 3 - 0825, Item 4 - 0910, Item 5 - 0840,
Item 6 - 0845.

Project Manager Review: Kenneth Hunt Date: 10/17/15

CLIENT: Duke Energy

Sample Container Count

COC PAGE 1950075
COC ID# 1950075

Project # 50130218

Sample Line Item	DG9H	AG1U	WG9U	AG0U	R	4/6	BP2N	BP2U	BP2S	BP3N	BP3U	BP3S	AG3S	AG1H	BP3C	BP1U	SP5T	AG2U	pH <7	pH >9	pH >12
1																					
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

Container Codes

Container Codes	DG9H	40mL HCL	amber vial	AG0U	100mL	unpreserved	amber glass	BP1N	1 liter	HNO3	plastic	DG9P	40mL	TSP	amber vial
AG1U	1 liter	unpreserved	amber glass	AG1H	1 liter	HCL	amber glass	BP1S	1 liter	H2SO4	plastic	DG9S	40mL	H2SO4	amber vial
WG9U	4oz	clear	soil jar	AG1S	1 liter	H2SO4	amber glass	BP1U	1 liter	unpreserved	plastic	DG9T	40mL	Na Thio	amber vial
R	terra	core	kit	AG1T	1 liter	Na Thiosulfate	amber glass	BP1Z	1 liter	NaOH, Zn, Ac		DG9U	40mL	unpreserved	amber vial
BP2N	500mL	HNO3	plastic	AG2N	500mL	HNO3	amber glass	BP2A	500mL	NaOH, Asc	Acid plastic	SP5T	120mL	Coliform	Na Thiosulfate
BP2U	500mL	unpreserved	plastic	AG2S	500mL	H2SO4	amber glass	BP2O	500mL	NaOH	plastic	JGFU	4oz	unpreserved	amber wide
BP2S	500mL	H2SO4	plastic	AG2U	500mL	unpreserved	amber glass	BP2Z	500mL	NaOH, Zn	Ac	U	Summa	Can	
BP3N	250mL	HNO3	plastic	AG3U	250mL	unpreserved	amber glass	AF	Air	Filter		VG9H	40mL	HCL	clear vial
BP3U	250mL	unpreserved	plastic	BG1H	1 liter	HCL	clear glass	BP3C	250mL	NaOH	plastic	VG9T	40mL	Na Thio.	clear vial
BP3S	250mL	H2SO4	plastic	BG1S	1 liter	H2SO4	clear glass	BP3Z	250mL	NaOH, Zn	Ac plastic	VG9U	40mL	unpreserved	clear vial
AG3S	250mL	H2SO4	glass	BG1T	1 liter	Na Thiosulfate	clear glass	C	Air	Cassettes		VSG	Headspace	septa vial & HCL	
AG1S	1 liter	H2SO4	amber glass	BG1U	1 liter	unpreserved	glass	DG9B	40mL	Na Bisulfate	amber vial	WGFX	4oz	wide jar w/hexane	wipe
BP1U	1 liter	unpreserved	plastic	BP1A	1 liter	NaOH, Asc	Acid plastic	DG9M	40mL	MeOH	clear vial	ZPLC	Ziploc	Bag	